

ULTRASONIC SURGICAL INSTRUMENT HAVING AN INCREASED WORKING LENGTH

Abstract of the Invention

The present invention is an ultrasonic surgical instrument having an altered cross sectional area and/or stiffness of $1/2$ wave segments of a waveguide and/or end effector. The waveguide is coupled to an ultrasonic transducer. The $1/2$ wave segments of the waveguide or end effector comprise a number of geometries and function to extend or decrease the length of a waveguide and/or end effector without adding or removing $1/2$ wave segments. The present invention is intended to function with conventional ultrasonic transducers at conventional frequencies.